

west of London was $6^{\circ}2$ above the average for 40 years, and the mean maximum and mean minimum exceeded the average by about the same amount. The month ranks with the mildest of the last half century, but was equalled by December 1898, and exceeded by December 1868. The number of days (19) on which the temperature exceeded 50° is unprecedented in this series of observations, for there were only 18 such days in 1868 and 17 in 1898. The present number of this popular magazine completes the 35th volume. The magazine, while retaining its special interest in rainfall, will in future deal more fully with all branches of meteorological science than it has done in the past.

Bollettino della Società Sismologica Italiana, vol. vi. No. 5.—Seismic Greece, by F. de Montessus de Ballore. A study of the geographical distribution of earthquakes in Greece.—On the velocity of the earth-waves of the Roumanian earthquake of September 10, 1893, by C. Davison (in English). Good observations of the time were obtained at Bucharest and Oxford, the latter by Prof. Boys in his experiment on the Newtonian constant of gravitation. They give a mean surface-velocity of 3.98 km. per second.—Three-component seismometrograph for strong earthquakes, by G. Agamennone. A first sketch of a proposed instrument.—Seismometrograph with continuous-velocity registration, by A. Cancani.—Notices of earthquakes recorded in Italy (August 4 to 24, 1899), by A. Cancani, the most important being distant earthquakes on August 17 and 24.

SOCIETIES AND ACADEMIES.

LONDON.

Chemical Society, January 17.—Prof. Thorpe, President, in the chair.—The following papers were read:—The preparation of iodic acid, by A. Scott and W. Arbuckle. The authors prepare iodic acid by heating powdered iodine with nitric acid in a glass flask fitted with a ground-in reflux condenser and a tube by means of which oxygen is passed through the boiling liquid.—Note on isomeric change and meta-substitution in benzenoid amines, by A. Lapworth. The author explains the action of fuming sulphuric acid on dimethylaniline by means of an extension of his previously published views on the occurrence of isomeric change.—The preparation of esters from other esters of the same acid, by T. S. Patterson and C. Dickinson. It is shown that ethyl tartrate can be converted into methyl tartrate by the action of methyl alcohol and hydrogen chloride, and that methyl tartrate can be converted into ethyl tartrate by an analogous process.—Tecomina, a colouring matter derived from *Bignonia tecoma*, by T. H. Lee. The wood of *Bignonia tecoma* yields a yellow crystalline colouring matter, and is used locally as a dye for cotton and as a stain for wood.—A new method for the measurement of ionic velocities in aqueous solution, by B. D. Steele. The method consists in enclosing the liquid to be examined between two partitions of gelatine which contains the indicator ion in solution. On the passage of the current the cation of the solution is followed by the cation of the indicator, and the anion of the solution by the corresponding anion of the indicator. It is necessary in all cases that these indicator ions should move more slowly than the ion to be measured; the motion is followed by means of a cathetometer.—Metal-ammonia compounds in aqueous solution, Part ii. The absorptive powers of dilute solutions of salts of the alkali metals, by H. M. Dawson and J. McCrae.—The amide, anilide and toluidides (ortho- and para-) of glyceric acid, by P. F. Frankland, F. M. Wharton and H. Aston.

MANCHESTER.

Literary and Philosophical Society, January 22.—Prof. Horace Lamb, F.R.S., President, in the chair.—The President referred to the loss sustained by the Society through the death of Prof. Ch. Hermite, one of its honorary members.—Mr. Francis Jones showed the mode of detecting small quantities of arsenic by Marsh's, Reinsch's and Gutzeit's methods. He also showed the results obtained by the action of light on the hydrides of arsenic and antimony in contact with sulphur, constituting a further test of the presence of these metals. The result obtained from a glass of arsenical beer by Marsh's test was also exhibited, together with a sample of invert-sugar containing arsenic.—Mr. R. L. Taylor remarked upon the occurrence of arsenic in certain green tapers, of which he showed two varieties obtained from half-a-dozen samples purchased in the neighbourhood of Manchester, and demonstrated the presence of a marked quantity of arsenic in a short piece cut off from one of these

tapers.—Dr. C. H. Lees mentioned a very compact formula for the circumference of an ellipse due to Mr. Thomas Muir, which is readily calculated with the aid of Barlow's tables. The accuracy of the approximation is very marked.

EDINBURGH

Royal Society, January 7.—Prof. Copeland in the chair.—Mr. W. S. Bruce, in a paper on exploration in Spitsbergen and soundings in seas adjacent, gave an account of the work he had undertaken in conjunction with the Prince of Monaco in the yacht *Princess Alice*, and with Mr. Andrew Coats, of Paisley, in the yacht *Blencartha* (now *Pandora*). One main object of the *Blencartha* expedition of 1898 was the determination of salinities and temperatures in the Barentz Sea, an important result being the delineation of the isotherms in the successive summer months. In the expedition of 1899, the Prince of Monaco's chief aim was to survey the littoral regions to the north and north-west of Spitsbergen. The most detailed work was done in Red Bay, which they found to be very inaccurately described in the Admiralty map, and in which they had taken over 2000 soundings and 2700 angles. Many new peaks and glaciers were discovered and named, one to the south of the bay being named Peak Ben Nevis. The greatest depths in the bay were much greater than the depths in the open sea beyond, a fact which seemed to prove the glacier origin of the bay. The paper was fully illustrated by a number of lantern slides, which brought out clearly much of the geological and zoological character of Spitsbergen and Novaya Zembla.

PARIS.

Academy of Sciences, January 21.—M. Fouqué in the chair.—Notice on M. Ch. Hermite, by M. C. Jordan.—Notice on M. Adolph Chatin, by M. Gaston Bonnier.—Influence of the substitution of alcohol for sugar in food, in isodynamic quantity, on the value of the muscular work accomplished by the subject, by M. A. Chauveau. The experimental results obtained during a period of 389 days show that the partial substitution of alcohol for sugar in the food ration in a subject doing work has an unfavourable effect from all points of view, there being a diminution in the absolute value of the muscular work, and an increase in the food used up with respect to the work accomplished.—On the influence of climate upon the evolution of experimental pleuro-pulmonary tuberculosis, by MM. Lannelongue, Achard and Gaillard. Three hundred guinea-pigs were inoculated with human tuberculosis, and then submitted to varying climatic conditions, some remaining in the laboratory at Paris, others being taken to the sea, open country, mountains, &c. The advantage appeared to be with those remaining in the laboratory. Although in each lot all the animals were inoculated with the same virus on the same day, great differences occurred in the development of tuberculosis.—On the supplementary condition in hydrodynamics, by M. P. Duhem.—M. Mascart announced to the Academy the death of M. Gramme.—On the telescopic planets, by M. R. du Ligondès. An analysis of the distribution in space of the telescopic planets shows that the assumption that they represent the debris of a nearly flat circular ring does not explain all the facts. The more probable hypothesis would appear to be the generation of the planets by successive agglomerations of matter circulating in the interior of the solar nebula.—On the generalisation of a theorem of M. Picard, by M. S. Kantor.—On a theorem in the calculus of probabilities, by M. A. Liapounoff.—On the liquefaction of gaseous mixtures. Variation of the concentrations of the two co-existent liquid and vapour phases along the isotherms, by M. F. Caubet. It is shown that any mixture of CO_2 and SO_2 which, at $66^{\circ}3$ and under a pressure of 57.6 atmospheres, can give two co-existing phases, will give a liquid phase of concentration 0.70926, and a vapour phase of concentration 0.33238.—On some properties of sodium peroxide, by M. de Forcrand. The author points out that the method of preparation of hydrated sodium peroxide, given by M. Jaubert in a recent number of the *Comptes rendus*, is identical with that published by Prof. Vernon Harcourt forty years ago.—On the combinations of ammonia with aluminium chloride, by M. E. Baud. The author's results differ from those previously obtained by Persoz and Rose. At least four stable compounds exist, $\text{Al}_2\text{Cl}_6 \cdot 2\text{NH}_3$, $\text{Al}_2\text{Cl}_6 \cdot 10\text{NH}_3$, $\text{Al}_2\text{Cl}_6 \cdot 12\text{NH}_3$, and $\text{Al}_2\text{Cl}_6 \cdot 18\text{NH}_3$. The first of these distils without decomposition at 450°C .—On the isolation of yttria, ytterbium, and the new erbium, by MM. G. and E.

Urbain. The crude earths from gadolinite are converted into ethyl sulphates. After ten crystallisations the mother liquors contain only the three elements yttrium, erbium and ytterbium, with perhaps a trace of thorium. These were further separated by the fractional decomposition of the nitrates by heat, which, in the absence of earths of the gadolinium group, gives a very satisfactory separation.—On an arsenide and chloro-arsenide of tungsten, by M. Ed. Defacqz. The interaction between hydrogen arsenide and tungsten hexachloride is analogous to that with the corresponding phosphorus compound, two compounds of the composition WAs_2 and W_2AsCl_6 being isolated.—On nitrofurane, by M. R. Marquis. By allowing anhydrous nitric acid and furfuran in acetic anhydride solution to react at $-5^\circ C.$, a nitrofurane can be obtained. The exact position of the nitro-group is not yet determined.—The absorption spectra of the indophenols, by M. Paul Lemoult.—On some new organometallic compounds of mercury, by MM. Auguste Lumière, Louis Lumière, and Chevrolier. When alkali phenol disulphonates react with mercuric oxide, compounds are formed of great solubility, and presenting some peculiar reactions, not being precipitated by soda, hydrochloric acid, or ammonium sulphide. Their taste is purely saline, and not metallic as is usual with mercury salts. The solutions, however, possess great antiseptic power.—On the mechanism of diastatic reactions, by M. M. Hanriot. By studies on the ferment lipase it is shown that the ferment, when attenuated by a chemical action, may regain its original activity, and also that the action of lipase upon acids and ethers appears to be a chemical combination governed by the ordinary laws of dissociation.—On the plurality of the chlorophyllines and on the metachlorophyllines, by M. M. Tsvett.—On a pseudo-agaric acid, by MM. Adrian and Trillat. The body extracted from agaric by alcohol does not appear to be a true acid, and when pure is without special physiological properties.—Transformation of creatine into creatinine by a soluble dehydrating ferment in the organism, by M. E. Gérard.—Modes of formation and preparation of propylbenzene, by M. F. Bodroux. Normal propylbenzene is formed along with other products by the interaction of benzene, trimethylene bromide and aluminium chloride.—Filtration of air by the soil, by M. Auguste Gérardin.—On the rôle of the chlorophyllian function in the evolution of terpenic compounds, by M. Eug. Charabot. Any influences which increase the vigour of the chlorophyll function in plants also appears to favour the production of the ethers of terpene alcohols.—On the chemical composition of the coffee from Grande Comore, by M. Gabriel Bertrand.—Action of mucus upon the organism, by M. M. Charrin and Moussu. Fresh mucus possesses poisonous properties when injected into the blood.—Radiopelvimetry and radiopelvimetry at long range, by M. Henri Varnier.—The sponges of the Belgian Antarctic expedition, and the bipolarity of the fauna, by M. E. Topsent.—Origin of the pigment in Tunicates. The transmission of the maternal pigment to the embryo, by M. Antoine Pizon.—A new theory of chromatic adaptation, by M. Georges Bohn.—Researches on the structure of some of the lower fungi, by M. Guillaumond.—Apparent symmetry in crystals, by M. Frédéric Wallerant.—On the origin of the gold in Madagascar, by M. A. Lacroix.—On the age of the eruptive rocks of Cape Aggie, by M. Leon Bertrand.—The domes of Saint Cyprien (Dordogne), Sauveterre and Fumel (Lot-et-Garonne), by M. Ph. Glangeaud.

DIARY OF SOCIETIES.

MONDAY, FEBRUARY 4.

VICTORIA INSTITUTE, at 4.30.—Ancient Script in Australia: E. J. Statham.

TUESDAY, FEBRUARY 5.

ROYAL INSTITUTION, at 3.—Practical Mechanics: Prof. J. A. Ewing. ZOOLOGICAL SOCIETY, at 8.30.—On the Mammals of the Balearic Islands: Oldfield Thomas.—On the Structure of the Horny Excrescence known as the "Bonnet" of the Southern Right Whale (*Balaena australis*): Dr. W. G. Ridewood.—A List of the Batrachians and Reptiles obtained by Dr. Donaldson Smith in Somaliland in 1899: G. A. Boulenger, F.R.S.

INSTITUTION OF CIVIL ENGINEERS, at 8.—The Present Condition and Prospects of the Panama Canal Works: J. T. Ford.

WEDNESDAY, FEBRUARY 6.

ROYAL INSTITUTION, at 3.—Government and People of China: Prof. R. N. Douglas.

GEOLOGICAL SOCIETY, at 8.—On the Origin of the Dunmail Raise (Lake District): D. Oldham.—On the Structure and Affinities of the Rhætic Plant *Naiadites*: Miss Igerna B. J. Sollas.

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THURSDAY, FEBRUARY 7.

ROYAL SOCIETY, at 4.30.—*Probable papers*: The Boiling Point of Liquid Hydrogen, determined by Hydrogen and Helium Gas Thermometers: Prof. Dewar, F.R.S.—On the Brightness of the Corona of January 22, 1893. Preliminary Note: Prof. H. H. Turner, F.R.S.—Preliminary Determination of the Wave Lengths of the Hydrogen Lines, derived from Photographs taken at Ovar at the Eclipse of the Sun, 1900, May 28: F. W. Dyson.—Investigations on the Abnormal Outgrowths or Intumescences on *Hibiscus vitifolius*, Linn.: A Study in Experimental Plant Pathology: Miss E. Dale.—On the Proteid Reaction of Adamkiewicz, with Contributions to the Chemistry of Glyoxylic Acid: F. G. Hopkins and S. W. Cole.

CHEMICAL SOCIETY, at 8.—Ballot for the Election of Fellows.—The Action of Hydrogen Bromide on Carbohydrates: H. J. H. Fenton and Mildred Gostling.—Note on a Method of comparing the Affinity-Values of Acids: H. J. H. Fenton and H. O. Jones.—Organic Derivatives of Phosphoryl Chloride, and the Space Configuration of the Valencies of Phosphorus: R. M. Caven.—(1) Synthetical Work with Sodamide Derivatives; (2) Note on Two Molecular Compounds of Acetamide; (3) Diacetamide, a New Method of Preparation: Dr. A. W. Titherley.

RÖNTGEN SOCIETY, at 8.—Experiences of X-Ray Work during the Siege of Ladysmith; Lieut. F. Bruce.

FRIDAY, FEBRUARY 8.

ROYAL INSTITUTION, at 9.—History and Progress of Aërial Locomotion: Prof. G. H. Bryan, F.R.S.

ROYAL ASTRONOMICAL SOCIETY, at 3.—Annual General Meeting. GEOLOGISTS' ASSOCIATION, at 8.—Annual General Meeting.—Twelve Years of London Geology: The President, W. Whitaker, F.R.S.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Mr. Wimperis' paper on Cycle Resistance will be submitted for discussion.

INSTITUTION OF MECHANICAL ENGINEERS, at 8.—Power-Gas and Large Gas-Engines for Central Stations: H. A. Humphrey.

ANATOMICAL SOCIETY, at 4.30.—The Origin of the Vertebrate Ear and Eighth Pair of Cranial Nerves: W. H. Gaskell, F.R.S.—A Critical Review of Recent Literature on Fossil Anthropoids: W. L. H. Duckworth.

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